CHLORANTHY AND VIVIPARY IN THE STAMINATE INFLORESCENCE OF EUCHLAENA MEXICANA

By J. Arthur Harris

In certain grasses, the constituent members of the spikelet are sometimes found more or less completely foliaceous,* the ovary

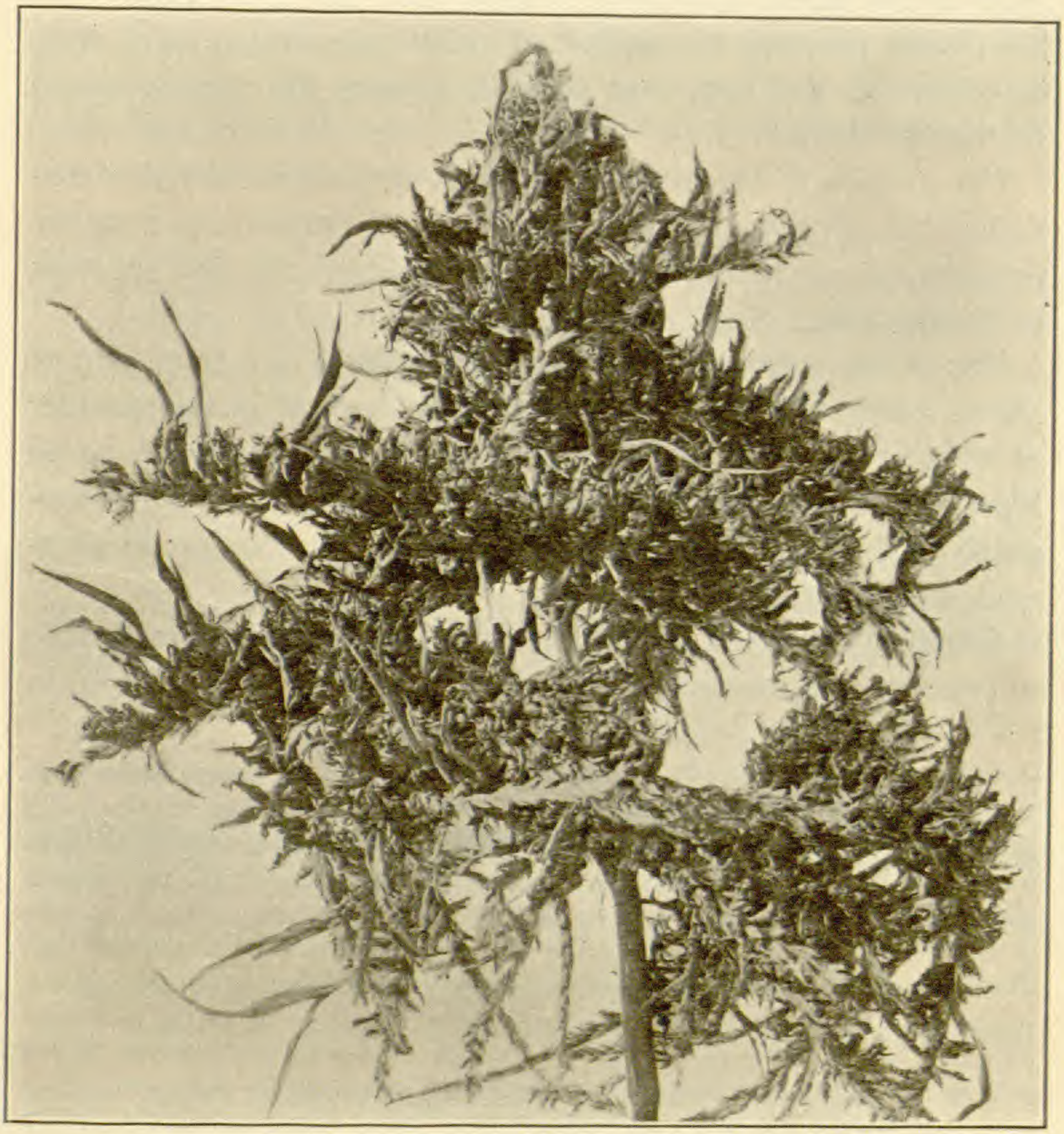

Fig. 1. Excessive glume development of *Euchlaena mexicana*.

and stamens sterile or abortive. Becoming detached, these sterile spikelets may serve for vegetative propagation. Indeed,

*See, for instance, Masters, Vegetable Teratology, pp. 168–170. The Graminaceae in Penzig's Pflanzen Teratologie may be gone through for references to the literature of individual species.

in certain species this method of reproduction is practically the normal one.* Such forms have sometimes been designated as viviparous, and the term is extended beyond the cases in which there is an actual vegetative reproduction, to those in which there is merely a teratological foliation of the spikelet.

Chloranthy is a term applied to the transformation of the parts of the flower into foliar organs, and this term might perhaps more properly be applied to many cases which have been described as vivipary, not only in grasses but among other monocotyledons.

The purpose of this note is, however, not to discuss the literature of this phenomenon, but merely to call attention to a rather remarkable case in *Euchlaena mexicana*, supposedly the ancestor of Indian corn.

One of the terminal staminate inflorescences of a small plot of plants grown in the Missouri Botanical Garden† in the summer of 1903 was noticed by my friend Dr. G. G. Hedgecock to be highly abnormal and he kindly placed the accompanying photograph in my hands. It shows a condition of excessive development of the glumes.

To determine whether these teratological spikelets were capable of continued development, a number of them were potted up in

* See Goebel, Organographie der Pflanzen, pp. 153, 159.

† The seeds were received as "Mais de Coyote" from a gentleman in San Luis Potosi, who stated that it is generally thought that under cultivation the form would change into ordinary maize. As examined the tenth of September most of the stalks were in a vigorous green condition, the pistillate inflorescences not yet mature. All who have grown the form (Watson, Baily, Harshberger) have noted the lateness of maturing. The largest of the culms attained a height of ten to thirteen feet. The suckering was not as conspicuous as described by Watson, while the habit of producing elongated axillary branches was retained, but owing to the immature condition of the plants much cannot be stated concerning the behavior of the axillary (pistillate) inflorescences. Watson does not mention the adventitious roots, but Harshberger notes the production of strong aerial roots at nearly all nodes below the ears. The same is true in my material, as many as the lower thirteen nodes being well supplied with these organs.

Whatever their ancestry—whether pure *E. mexicana* or with some admixture of *Zea Mays*—the Missouri Botanical Garden plants were very close to the typical *E. mexicana*.

The immaturity of the pistillate inflorescence at frost precludes the settling of some of the minor details.

sand, and later transferred to soil. Good roots were secured, and a considerable expansion of the leaves and elongation of the internodes, but I am inclined to doubt whether any new leaves were laid down. One of these rooted spikelets produced three stigmas, "silks," an additional abnormality in the staminate inflorescence.

Such chloranthy or vivipary has sometimes been observed in *Zea Mays*. Perhaps some one finding it again may be so fortunate as to get good vegetative propagations. Possibly the technique adopted in my attempts was not adequate, but a wide series of experiments could not be made.

THE FLORA OF NORTHAMPTON COUNTY, PENNSYLVANIA

By Wilbur L. King

(*Continued from July* Torreya)

VIOLACEAE

Viola palmata L. In thickets in Monocacy valley 1 mile north of Bethlehem, Apr. 22, 1897.; on dry hillsides of Lehigh Mt. near South Bethlehem, May 30. Altitude 850 feet.
Viola papilionacea Pursh. In woodlands. (Porter.)
Viola obliqua Hill. In woodland along Monocacy Creek 1 mile north of Bethlehem. April 22, 1897.
Viola domestica Bickn. In cultivated soil and about dwellings. Bethlehem.
Viola cucullata Ait. In bogs and meadows. (Porter.)
Viola villosa Walt. In woods near South Bethlehem. May 30.
Viola sororia Willd. In woodland along Monocacy valley near Bethlehem.
Viola sagittata Ait. In wet meadows and marshes. (Porter.)
Viola fimbriatula J. E. Smith. On hillsides of Lehigh Mt. near Lehigh University. Altitude 850 feet.
Viola pedata L. At Bougher Hill, Williams township (J. A. Ruth). In copse on Lehigh Mt. May 9, 1896. Altitude 900 feet.
Viola odorata L. In thickets along Monocacy creek 1 mile north of Bethlehem.
Viola blanda Willd. In damp woods on Lehigh Mt. May 13, 1899.
Viola lanceolata L. In wet meadows along streams. (Porter.)
Viola pubescens Ait. In woods on Lehigh Mt. April 27, 1896.
Viola scabriuscula (T. & G.) Schwein. In moist woods along Monocacy creek 1½ miles north of Bethlehem.
Viola striata Ait. In moist thickets along Lehigh canal 1 mile east of Bethlehem. May 9, 1896.
Viola rostrata Pursh. In rocky woods. (Porter.)
Viola tricolor L. In waste places, sparingly escaped. (Porter.)
Viola Rafinesquii Greene. On hillsides. (Porter.)
Cubelium concolor (Forst.) Raf. In moist woods. (Porter.)